

Alaska Department of Transportation & Public Facilities Correspondence

MEMORANDUM

State of Alaska

Department of Transportation & Public Facilities
Statewide Design & Engineering Services Division

TO: Al Steininger, Engineering Manager


DATE: February 11, 2000

FILE NO:

TELEPHONE NO: 465-6964

FAX NUMBER: 465-2460

TEXT TELEPHONE: 465-3652

FROM: 
Harold Moeser, P.E.
State Ports and Harbors Engineer

SUBJECT: TM on Application of
Simulators to Bridge
Alignment and Clearances

After my initial comments to you by phone, I decided to pursue it further. Here are my comments.

PIANC publications are great practical references, but are heavily influenced by Belgium and other European design practice to driven by the need minimize dredge cost by optimizing channel width. While the rational is valid, the application of Ref [1] and Table 5.2, 5.3 and 5.4 for the Ketchikan channel does require some judgement and knowledge of the engineering principles behind the table 5.2 so they do not over or under state the recommended channel width. Many of the factors are very relevant where approach channels are across wide bodies of shallow water, where vessel squat and bank interference are complicating factors because of shallow depths and steep banks. Also, long meandering channels often have to cross wind and current vectors on some legs. Tongass Narrow is a natural deep-water channel with prevailing wind and current directions very well defined. A better discussion of the assumptions used to build the Table 4 of the Technical Memorandum is needed. It is obvious that the min max table is impacted by the assumed physical characteristics of the channel.

My comments on the inputs to Table 5.2 are:

- a) Vessel speed is slow by the speed restriction in Tongass Narrows to 7 knots.
- b) Prevailing cross wind would be mild in all cases because the key word here is "prevailing". Wind prevails along channel dimensions.
- c) Prevailing cross currents is negligible. The 6 to 1 vectors for current are exceptionally conservative for most of Tongass narrows. Prevailing currents are along channel lengths. Occasional shearing forces are experienced in either direction but these do not prevail.
- d) Prevailing longitudinal current is moderate < 3 knots.
- e) Significant wave height H_s and length is much less than vessel length.
- f) Aids to navigation is excellent considering you can see the beach, the channel is already narrow, less than 1000 feet in most places, not a very broad body of shallow water dependent on buoys to mark the deeper main channel.
- g) The bottom surface is not a factor until the depth becomes less than 1.5 times vessel draft. The 40 and 41-foot depths in the min max table indicate the sensitivity of vessels to depth at speed where bottom influences affect vessel maneuverability.
- h) Bottom surface is not a factor until the depth becomes less than 1.5 times vessel draft. These characteristics may be modified by the imposition of bridge piers.
- i) Cargo hazard level is definitely low.

Table 5.3 adds for traffic density. While for Alaska Tongass Narrows may be moderate, by world class port standards it may very well be low with little prospect at becoming moderate.

Table 5.4 adds width for bank clearance, which unless the bridge piers intrude extensively would be minimal with channel edges and banks that slope.

The value of simulation, as stated in the ref [1] is that it can help pilots and masters understand and assess the new proposed new conditions.

Tongass Narrows and natural restrictions that have already been considered in the vessel management plan and operating restrictions for Tongass Narrows. The table below shows those easily observable from the chart.

Location	Approximate Channel Width	Nearest Navigation Aid
Pennock West Channel	540	G "5"
Pennock Reef	700	R "4A"
Ketchikan Shipyard	700	Private aid FL R 4s
California Rock East Channel	450	G "3"
California Rock West Channel	670	G "3"

My comments on Table 5.2 are only representative of a quick look at Tongass Narrows in a general overview. Channel cross section will change at the proposed crossing and the recommended channel width will vary location and imposed conditions.

Recommendations:

- 1) Carefully rationalize and explain each factor affecting channel width recommendations.
- 2) Be prepared to compare existing natural channel restrictions against proposed channel cross sections.
- 3) Evaluate vessel management strategies as alternatives to solving navigation problems. One way traffic is certainly a manageable alternative.
- 4) Be prepared to offer vessel simulation at a preliminary stage if the proposed cross sections are more restrictive than naturally occurring cross sections, and if pilots and masters become highly concerned about the proposed channel cross section.

cc: Elmer Marx, Bridge Engineering
Phil Grasser, Marine Ferry Design
Rob Miller, Marine Facilities Design

MEMORANDUM

07072-144/4.1.2
State of Alaska

Department of Transportation & Public Facilities
Design & Engineering Services Division
Southeast Region - Preconstruction Engineer

Pin
ROGOL

TO: Joseph L. Perkins, P.E.
Commissioner

DATE: November 29, 2000

Thru: Michael L. Downing, P.E. *MD*
Director, Design & Engineering Services

FILE: 67698
TELEPHONE: 465-4418

FROM: Patrick J. Kemp, P.E. *PJ*
Pre-Construction Engineer

SUBJECT: Gravina Island Access

On August 29th you approved our recommendation to not advance (into the DEIS study) project alternatives that exceed \$150 million in life cycle costs. This threshold was based upon the reasonable expectation the State would not receive high priority funds greater than that amount.

On November 6th, the Ketchikan Gateway Borough Assembly passed resolution No 1578 (attached) which recommends five alternatives be advanced. One of the alternatives (F3: Pennock Island) exceeds \$150 million.

The Assembly felt strongly that F3 be advanced because it minimizes airport and air navigation impacts and allows the best options for airport expansion. To accommodate the Assembly we recommend the \$150 million threshold be increased to \$175 million.

Concur:

Joseph L. Perkins

Joseph L. Perkins, Commissioner

MEMORANDUM**State of Alaska**

Department of Transportation & Public Facilities
Division of Design and Engineering Services
Southeast Region- Preconstruction

TO: Joseph Perkins, P.E.
Commissioner

THRU: Bob Doll
Regional Director

FROM: Pat Kemp, P.E.
Preconstruction Engineer

DATE: April 22, 2002
FILE NO: Project No. 67698
TELEPHONE: 465-4418

SUBJECT: Gravina Island Access
F1 Alternative

The Ketchikan community has requested the Department reconsider a Pennock Island bridge alternative that would allow passage of cruise ships through the East Channel. This alternative is referred to as the F1 alternative. Due to cost considerations, this alternative was previously withdrawn from the alternatives to be studied in the Draft Environmental Impact Statement (DEIS).

Representative Young has recently assured project proponents that alternatives with project costs above \$190 million are reasonable from a federal funding standpoint. The F1 alternative is the alternative that was closest to the original price ceiling. Considering the strong local support for this alternative combined with federal funding assurances, we are requesting your approval to initiate the concurrence process to include the F1 alternative in the alternatives to be studied in the DEIS.

Approved: _____

Joseph L. Perkins 4-30-02
Joseph Perkins, P.E.
Commissioner

Post-it® Fax Note	7671	Date	5/9/02	# of pages	1
To	MARK DALTON	From	RUBEN YOST		
Co./Dept.	HDR	Co.	ADOT TPE		
Phone #		Phone #	465-4498		
Fax #	274-2022	Fax #	465-3506		

MEMORANDUM

Attachment 5. State of ADOT/PF Memo Regarding Cost Ceilings

Department of Transportation & Infrastructure
Statewide Design & Engineering Services
Southeast Region - Preconstruction

TO: Joseph L. Perkins, P.E.
Commissioner

DATE: August 29, 2000
FILE NO: 67698

07072-1441
4.12

THRU: Bob Doh
Director
Southeast Region

Mike Downing, P.E.
Director
Statewide Design & Engineering Services

FROM: Patrick J. Kemp, P.E.
Preconstruction Engineer
Southeast Region

SUBJECT: KTN - Gravina Island Access

The alternative selection process for the Gravina Island Access project is progressing. Currently, HDR is finalizing the method to be used in winnowing the 18 different crossing alternatives to those that are considered reasonable. Once approved, this selection process will be used to forward a select few alternatives for agency concurrence and evaluation in the DEIS.

We have found through preliminary study that the primary determination of reasonableness must be construction (life cycle) cost. Physical, social, and environmental impacts are important, but their relative difference between the 18 alternatives is not substantial enough to lead the winnowing process. Therefore, it is important for the Department to establish reasonable cost limits to streamline the selection process and draw the expectations of this project down to attainable levels.

We recommend a construction and 50-year life cycle project cost limit of \$150 million. This limit identifies a natural break in the cost of the proposed alternatives.

These financial limits results in eight alternatives being forwarded for further study:

High Level Bridge (Alternatives C3 and C4)

These alternative cross in the airport area. This span allows the passage of one way cruise ship traffic. Both alternatives follow the same alignment across Tongass Narrows and onto Gravina Island, but have different approaches onto Revilla. The cost of these alternatives are near \$150 million.

Commissioner Perkins

- 2 -

August 2900

Low level Bridge (Alternative D1)

This alternative crosses in the airport area. It would allow passage of Columbia class ferries, but would not allow large cruise ship traffic. The estimated construction cost for this option is \$89.2 million.

Ferry Alternatives (Alternates G1, G2, G3, and G4)

The four ferry alternatives range in construction cost from about \$40 to \$72 million. Three of these four alternatives have marked economic, convenience, transportation, and environmental disadvantages to the others and will probably be dropped from further consideration because of these factors. Life cycle costs for the ferry options closely approach those for the bridge options.

The No-Build Option will be carried forward through the environmental process.

By agreeing to set this limit the project development and NEPA process can be expedited and the time and expense of future study on alternatives that are not realistic will be controllable.

Please indicate your concurrence that the \$150 million upper limit is a reasonable amount for the alternative selection process.

Concurrence

Joseph L. Perkins

Date

Attachment

MEMORANDUM**State of Alaska**

Department of Transportation & Public Facilities
Office of the Commissioner

TO: Distribution

DATE: June 7, 1995

TELEPHONE NO: 465-3901
TEXT TELEPHONE: 465-3652
FAX NUMBER: 586-8365

Joseph L. Perkins
FROM: Joseph L. Perkins, P.E.
Commissioner

SUBJECT: Bicycle and Pedestrian
Accommodations

I fully support and endorse the comments contained in the attached June 5, 1995 memorandum from Governor Tony Knowles.

It is the policy of this department that accommodations for bicyclists and pedestrians be considered and implemented for all of our highway projects. Exceptions to this policy will be approved by me on a case-by-case basis.

Request that this policy and the Governor's memorandum be provided to all personnel involved with the planning and design of our projects.

Attachment

Distribution: Boyd J. Brownfield, Deputy Commissioner
John Horn, Central Regional Director
Rod Platzke, Acting Northern Regional Director
Jon Scribner, Southeast Regional Director
Gary Hayden, AMHS Director
Tom Brigham, Director, Statewide Planning
Rod Wilson, Acting Director, Engineering & Operations
Ron Lind, Director, Administrative Services

File Copy 07072 - 144

File Topic 1 4.1.2 ☐
File Topic 2 _____ ☐
File Topic 3 _____ ☐
File Topic 4 _____ ☐
File Topic 5 _____ ☐
Union # _____

STATE OF ALASKA

TONY KNOWLES, GOVERNOR

DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES

February 10, 2000

RE: Cultural Resources in the Gravina Access Project Area

Dear:

The U. S. Congress has allocated funds to a special project to improve transportation access between Ketchikan and Gravina Island. This link will provide access to the Ketchikan International Airport and to the island itself. The Alaska Department of Transportation & Public Facilities (DOT&PF) has contracted with HDR Alaska, Inc. to define issues of concern and identify environmental impacts of a range of alternatives.

In compliance with Federal laws regarding cultural resources, most notably the National Historic Preservation Act of 1966, DOT&PF must consider what effects the undertaking might have on historic properties and cultural sites. HDR Alaska, Inc. has hired Cultural Resource Consultants, a firm based in Anchorage, to identify cultural resource concerns in the project area. As the lead state agency for this project, DOT&PF is contacting your organization to invite your participation in this process.

DOT&PF is contacting tribal governments, native organizations, or individuals who might have special knowledge of the area, to ascertain if there are cultural properties which could be effected by the proposed undertaking. These properties could be physical sites such as former villages, clan houses, or camps, or special areas with intangible associations, such as sacred sites, places of legend, or areas of traditional cultural activity.

If your organization is interested in participating in this process, or if you know persons within your organization who might be interested or have specific knowledge, please contact Robin Reich at HDR Alaska, Inc. by phone at 586-9833 or 1-888-520-4886 outside Juneau. She may also be contacted by writing at HDR Alaska, Inc., 712 W. 12th Street, Juneau, Alaska 99801. She will arrange and coordinate a meeting with your organization and a representative from Cultural Resource Consultants.

Thank you in advance for your assistance.

Sincerely,

Al Steininger, P.E.
Project Manager

Attachments

Cc: Judith Bittner, DNR-SHPO; Michelle Jespersen, DNR-SHPO; Mike Yarborough, Cultural Resource Consultants

Memorandum



To: Concurring Agency Representatives
Gravina Access Project

Date: 6/3/02

From: Roger Healy, Project Manager

Alaska Department of Transportation and Public Facilities

Subject: Addendum to the Identification of Reasonable Alternatives Recommended for
Further Analysis in the Gravina Access Project National Environmental Policy
Act Document

The Alaska Department of Transportation and Public Facilities (DOT&PF) is requesting that the concurrence agencies approve minor modifications to the reasonable alternatives and approve the addition of a previously rejected alternative to the mix of reasonable alternatives. DOT&PF proposes to amend the reasonable alternatives with the relatively minor changes discussed below. We ask that you review this information and provide a response back to me within three weeks. If you need additional time please let me know. A concurrence form is enclosed for your use.

As you may recall, in January 2001 DOT&PF identified seven build alternatives and the no action alternative as reasonable alternatives for the Gravina Access Project using a screening process that evaluated the 18 original build options using a comprehensive set of evaluation criteria. The reasonable alternatives were described in a November 29, 2000 proposed reasonable alternative package as:

- No-Action Alternative: Existing airport ferry continues to operate as the only public access to Gravina Island
- Alternative C3: 210-foot high bridge from Signal Road to the Airport
- Alternative C4: 210-foot high bridge from the Cambria Drive area to the Airport
- Alternative D1: 120-foot high bridge from the quarry area to the Airport
- Alternative F3: Pennock Island Crossing - 60-foot bridge over East Channel and 210-foot bridge over West Channel
- Alternative G2: Ferry route from Peninsula Point
- Alternative G3: Ferry route from Downtown Ketchikan
- Alternative G4: Ferry route adjacent to existing ferry



Memorandum



The DOT&PF forwarded this list of reasonable alternatives to the state and federal concurring agency representatives¹ for formal concurrence under the interagency agreement to merge the National Environmental Policy Act (NEPA) and Section 404 processes. In March 2001, all agencies involved in the concurrence process concurred with DOT&PF's recommendation of reasonable alternatives.

During the following period, the DOT&PF and its consultant, HDR Alaska Inc. (HDR), conducted additional engineering and other technical studies to further analyze and refine the reasonable alternatives. As a result of this work, the conceptual designs for several of the bridge alternatives were altered slightly, and a variation of one bridge alternative was added to our list of reasonable alternatives. Specifically, the 210-foot vertical clearance bridges associated with alternatives C3, C4, and F3 were reconfigured as 200-foot vertical clearance bridges. This change was made to be consistent with the vertical clearance of other structures found along the west coast; a few keys structures such as the Seymour Narrows cable crossing and Vancouver Lion's Gate Bridge are set at or near 200 feet vertical clearance.

A new 120-foot bridge alternative was added in the same general location as Alternative C3. The reason a 120-foot alternative was added at this location is that, after crossing Tongass Narrows, it comes down more quickly to the airport terminal area than Alternative D1. The actual area of impact is very similar to the original C3. The new 120-foot bridge alternative is identified as Alternative C3(b) and the original 200-foot bridge at that location is identified as Alternative C3(a).

The landing of Alternative D1 is slightly different than shown in the original concurrence package dated November 29, 2000—the alignment now turns southward to parallel the shoreline on Gravina Island. This change has been previously discussed with state and federal agencies.

In addition, all alternatives now include an access road that runs parallel to and west of the airport runway (see the enclosed Gravina Access Alternatives figure dated March 2002). This access road has also been previously discussed and is included to provide each alternative with uniform access to other Borough developable lands. This intent is consistent with the needs expressed in the statement of purpose and need for more reliable, efficient, convenient, and cost-effective access to borough lands. In addition, the Borough has expressed clear interest in access to the area north of the airport for its near-term development potential. Limited development already occurs in this area. Revised descriptions of all the reasonable alternatives are provided as Attachment 1.

Based on the numerous engineering and technical studies conducted last year, the DOT&PF identified Alternative F3, the Pennock Island crossing, as its recommended alternative, as discussed in the cover letter accompanying the January 2002 Alternatives Evaluation Summary Report. Since release of that document, DOT&PF has received considerable input from the community, elected officials, and local, state, and federal agency representatives concerning the

¹ The agencies signatory to or participating in the National Environmental Policy Act and Clean Water Act Section 404 merger agreement include the Alaska Department of Fish and Game, the Alaska Department of Environmental Conservation; the Alaska Department of Natural Resources; the U.S. Environmental Protection Agency; the U.S. Army Corps of Engineers; the National Marine Fisheries Service; and the U.S. Fish and Wildlife Service.



Memorandum



reasonable alternatives. Many of the comments show support for a Pennock Island crossing, but there has been a great deal of interest and preference shown for an alternative that has a 200-foot high bridge over East Channel and an approximately 120-foot high bridge over West Channel. A complete description of Alternative F1 is provided at the end of Attachment 1.

The DOT&PF has also received clear indication from the Alaska Congressional delegation that the \$175 million cost ceiling could be increased to allow for the consideration of Alternative F1—this is new information. Based on this information and concerns raised in Ketchikan, DOT&PF proposes to change the cost criterion to an approximate maximum of \$225 million. F1 was originally determined to be unreasonable solely on the basis of cost; raising the cost criterion means that F1 should now be considered a reasonable alternative to study in the draft EIS. Therefore, DOT&PF proposes that Alternative F1 be included in the range of reasonable alternatives evaluated in the draft EIS. As a result, the DOT&PF is forwarding you this addendum to the reasonable alternatives concurrence that includes Alternative F1.

F1 is largely similar to F3, especially from the point it makes landfall on Pennock Island around to the airport. Once concurrence is secured, our intent is to prepare a separate analysis of F1 similar to the work conducted for all the reasonable alternatives that was summarized in the January 2002 Alternatives Evaluation Summary Report. We will forward that evaluation to you within a few weeks of the completion of this concurrence review.

Attachments

CC: Rep. Bill Williams, Ketchikan
Ketchikan Gateway Borough Assembly
Ketchikan City Council
Saxman City Council
Saxman IRA Council
Tim Haugh, FHWA
Jim Helfinstine, USCG
Jim Lomen, FAA
Susan Dickinson, KGB
Cape Fox Corporation
Ketchikan Economic Development Authority
Mark Dalton, HDR Alaska



MEMORANDUM

Attachment 5.
State of ADOT/PF Memo RegardingDepartment of Transportation & Infrastructure
Statewide Design & Engineering Services
Southeast Region - PreconstructionTO: Joseph L. Perkins, P.E.
CommissionerDATE: August 29, 2000
FILE NO: 67698THRU: Bob Doh
Director
Southeast RegionMike Downing, P.E.
Director
Statewide Design & Engineering ServicesFROM: Patrick J. Kemp, P.E.
Preconstruction Engineer
Southeast Region

SUBJECT: KTN - Gravina Island Access

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Dalton, Mark

From: Tim Haugh [Tim.Haugh@igate.fhwa.dot.gov]
ent: Tuesday, October 24, 2000 6:56 AM
to: reuben_yost@dot.state.ak.us; ROGER_HEALY@dot.state.ak.us
Cc: mdalton@hdrinc.com; Al Fletcher; Aaron Weston; David C Miller; John Lohrey
Subject: Gravina

Based on meetings in this office, it is the FHWA's opinion that no ferry alternatives can be dropped from the Reasonable category based solely on a travel time component of convenience. If the State believes, after compiling the data, that the sum of impacts of any of the ferry alternatives rise to a level which would make the alternative(s) not reasonable, we would request a meeting to discuss.

Tim A.Haugh
Environment/Realty Specialist
Phone: (907) 586-7430
Fax: (907) 586-7420